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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,758	01/29/2002	Steven B. Elgee	10013857 -1	2415

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EXAMINER
LIANG, LEONARD S

ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/062,758	ELGEE ET AL.	
	Examiner	Art Unit	
	Leonard S Liang	2853	

-- The MAILING DATE of this communication app ars on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 June 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11,13-22,24-27 and 29-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,13-22,24-27 and 29-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-2, 5, 8-11, 13-17, 19-20, 22, 24-27, and 29-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gandy et al (US Pat 5376957) in view of Meyers et al (US Pat 6463674).

Gandy et al discloses:

- {claim 1} An inkjet printing mechanism, a media support (figure 1); a bi-furcated carriage which scans an inkjet printhead across the printzone, a first portion of the carriage located on a first side of the media when in the printzone, a second portion of the carriage being located on a second side of the media when in the printzone (figure 1, reference 23, 25)

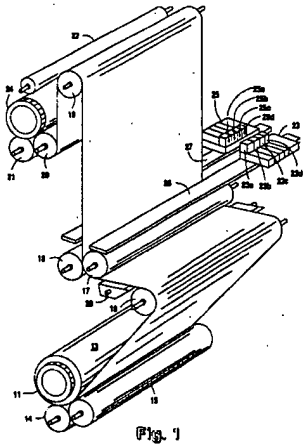


Fig. 1

- {claim 11} the printhead directs ink droplets into the printzone and onto the media, and the heating element creates a heat zone at a surface of the media (figure 1; abstract)

- {claim 14} An inkjet printing mechanism, a printzone (figure 1); a first carriage located on a first side of the printzone, the first carriage supporting an inkjet printhead (figure 1, reference 23); a second carriage located on a second side of the printzone (figure 1, reference 25)
- {claim 15} the print media in the printzone has a print surface exposed to the printhead to receive ink therefrom, and has an opposing surface opposite the print surface (figure 1)
- {claim 16} the first side of the printzone faces the media print surface and wherein the second side of the printzone faces the media opposing surface (figure 1)
- {claim 17} the inkjet printhead projects ink droplets into the printzone as print imaging on media when in the printzone, the print imaging receiving heat energy from the heat element (figure 1; abstract; column 3, lines 26-68; column 4, lines 1-4)
- {claim 20} the printing mechanism synchronously scans the first carriage and the second carriage to maintain a selected alignment therebetween (column 5, lines 60-63)
- {claim 22} A method of applying print imaging by ink droplet deposition on media and drying the print imaging, reciprocating a first carriage across the printzone; projecting from the first carriage ink droplets as the print imaging (figure 1); synchronously scanning a second carriage relative to the first carriage (column 5, lines 60-63)
- {claim 26} controllably advancing media in a feed direction through the printzone (figure 1)
- {claim 27} A printing method; placing media in a printzone for print imaging; reciprocating a first carriage across the printzone; projecting from the first carriage ink droplets as the print imaging (figure 1; column 3, lines 26-68; column 4, lines 1-6); synchronously scanning a second carriage relative to the first mentioned carriage (column 5, lines 60-63)

- {claim 31} A printing method; applying ink having an evaporable component to a print media (figure 1; abstract)
- {claim 33} the applying comprises scanning a printhead across the media (figure 1, reference 23, 25)
- {claim 37} advancing the media through the printzone between each of a series of the applying and the moving (figure 1)
- {claim 38} An inkjet printing mechanism; means for reciprocating a carriage relative to a printzone, printing means (figure 1; column 5, lines 49-63)
- {claim 41} the printing means comprises an inkjet printing device projecting ink droplets therefrom (figure 1, reference 23, 25)

Gandy et al differs from the claimed invention in that it does not disclose:

- {claim 1} a bi-furcated heating element supported by the carriage, a first portion of the heating element being carried by the first portion of the carriage, a second portion of the heating element being carried by the second portion of the carriage, the first and second heater elements being maintained in face-to-face relation across the print zone
- {claim 2} microwave heating element
- {claim 5} radio frequency heating element
- {claim 8} a stationary blower
- {claim 9} a radio frequency applicator
- {claim 10} a microwave applicator
- {claim 13} the first and second heating element portions define a gap therebetween, the gap comprising a heat zone generated by the heating element
- {claim 14} a first heater element portion; the second carriage holding a second heater element portion, the first and second heater element portions forming a heater element
- {claim 19} the first and second heater element portions cooperatively form a microwave applicator

- {claim 22} projecting from a first heater element on the first carriage radiant energy applied as heat energy to the media; the second carriage holding a second heater element cooperative with the first heater element to generate and apply the heat energy to the media, the first and second carriage being maintained in face-to-face relation with the media interposed therebetween
- {claim 24} the first and second heater elements comprise a microwave heater
- {claim 25} the first and second heater elements comprise an RF heater
- {claim 27} projecting from a first heater element on the first carriage radiant energy applied as heat energy to the heat media; the second carriage holding a heater element cooperative with the heater on the first carriage to apply the heat energy to the media, the first and second carriage being maintained in face-to-face relation with the media interposed therebetween
- {claim 29} the first and second heater elements comprise a microwave heater
- {claim 30} the first and second heater elements comprise and RF heater
- {claim 31} thereafter, moving a heat zone across the media to accelerate evaporation of the evaporable component, the eat zone being generated by cooperative first and second heating elements moving synchronously and relative to the print media and cooperative to produce the heat zone, the first and second heating elements being maintained in face-to-face relation with the print media interposed therebetween
- {claim 32} the moving comprises scanning the first and second heating elements across the print media
- {claim 34} the heat zone using microwave heating produced cooperative by the first and second heating elements
- {claim 35} generating the heat zone at opposing surfaces of the media
- {claim 36} generating the heat zone from RF heating produced cooperative by the first and second heating elements
- {claim 38} means for applying heat energy to the media and supported by the carriage means, the means for applying heat energy being bifurcated and

including cooperative first and second heater elements, the first heater element being positioned at a first side of the media and the second heater element being maintained in face-to-face opposition therewith at a second side of the media

- {claim 39} microwave energy source
- {claim 40} RF energy source

Meyers et al discloses:

- {claim 1} a bi-furcated heating element supported by the carriage, a first portion of the heating element being carried by the first portion of the carriage, a second portion of the heating element being carried by the second portion of the carriage, the first and second heater elements being maintained in face-to-face relation across the print zone (figure 3, reference 141, 151)

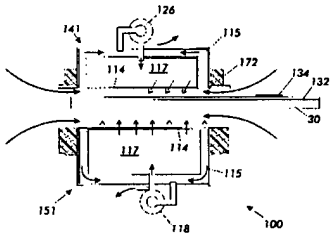


FIG. 3

- {claim 2} microwave heating element (column 1, line 29)
- {claim 5} radio frequency heating element (column 1, lines 54-56)
- {claim 8} a stationary blower (figure 3, reference 126)
- {claim 9} a radio frequency applicator (column 1, lines 54-56)
- {claim 10} a microwave applicator (column 1, line 29)
- {claim 13} the first and second heating element portions define a gap therebetween, the gap comprising a heat zone generated by the heating element (figure 3)
- {claim 14} a first heater element portion (figure 3, reference 141); a second heater element portion, the first and second heater element portions forming a heater element (figure 1, reference 141, 151)
- {claim 19} the first and second heater element portions cooperatively form a microwave applicator (figure 3; column 1, line 29)

- {claim 22} projecting from a first heater element on the first carriage radiant energy applied as heat energy to the media (figure 3, reference 141); the second carriage holding a second heater element cooperative with the first heater element to generate and apply the heat energy to the media (figure 3, reference 151)
- {claim 24} the first and second heater elements comprise a microwave heater (column 1, line 29)
- {claim 25} the first and second heater elements comprise an RF heater (column 1, lines 54-56)
- {claim 27} projecting from a first heater element radiant energy applied as heat energy to the heat media (figure 3, reference 141); a heater element cooperative with the first heater to apply the heat energy to the media (figure 3, reference 151)
- {claim 29} the first and second heater elements comprise a microwave heater (column 1, line 29)
- {claim 30} the first and second heater elements comprise and RF heater (column 1, lines 54-56)
- {claim 31} first and second elements (figure 3, reference 141, 151)
- {claim 34} the heat zone using microwave heating produced cooperative by the first and second heating elements (figure 3, reference 141, 151; column 1, line 29)
- {claim 35} generating the heat zone at opposing surfaces of the media (figure 3)
- {claim 36} generating the heat zone from RF heating produced cooperative by the first and second heating elements (column 1, lines 54-56)
- {claim 38} means for applying heat energy to the media and supported by the carriage means, the means for applying heat energy being bifurcated and including cooperative first and second heater elements, the first heater element being positioned at a first side of the media and the second heater element being maintained in face-to-face opposition therewith at a second side of the media (figure 3, reference 141, 151)

- {claim 39} microwave energy source (column 1, line 29)
- {claim 40} RF energy source (column 1, lines 54-56)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the heating elements of Meyers et al onto the carriages of Gandy et al. The motivation for the skilled artisan in doing so is to gain the benefit of actively drying the media in a rapid continuous manner so that no subsequent drying period is needed (column 2, lines 16-22). The combination naturally suggests a first carriage holding a first heating element portion, a second carriage holding a second heating element portion, the heater portions being maintained in face-to-face opposition across the printzone, and the first and second heating element portions being scanned across the media.

2. Claims 3-4, 18, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gandy et al (US Pat 5376957) in view of Meyers et al (US Pat 6463674), as applied to claims 1-2, 5, 8-11, 13-17, 19-20, 22, 24-27, and 29-41, and further in view of Carreira et al (US Pat 5220346).

Gandy et al in view of Meyers et al further discloses:

- {claim 4} the heat zone scans synchronously with the carriage (naturally suggested in view of combination of Gandy et al and Meyers et al)
- {claim 18} first and second heater elements (Meyers et al figure 3, reference 141, 151)
- {claim 21} heating element is a microwave heating element (column 1, line 29)

Gandy et al, as modified, differs from the claimed invention in that it does not disclose:

- {claim 3} the microwave heating element includes a bi-furcated waveguide spanning the first portion and the second portion of the heating element and defining a heat zone therebetween
- {claim 18} a microwave energy source and a first portion of a waveguide, a microwave load, and a second portion of a waveguide, the first and second waveguide portions together forming a waveguide directing microwave energy

from the source to the load, the printzone occupies space between the first portion of the waveguide and the second portion of the waveguide

- {claim 21} at least one of the first carriage and the second carriage holding a microwave load and the other one of the first carriage and the second carriage supporting a microwave source

Carreira et al discloses:

- {claim 3} the microwave heating element includes a bi-furcated waveguide spanning the first portion and the second portion of the heating element and defining a heat zone therebetween (figure 7A, reference 13; column 10, lines 61-68)

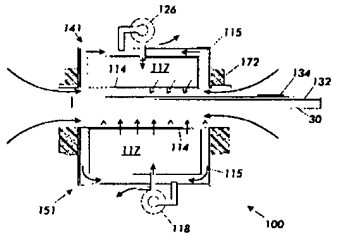


FIG. 3

- {claim 18} a microwave energy source and a first portion of a waveguide, a microwave load, and a second portion of a waveguide, the first and second waveguide portions together forming a waveguide directing microwave energy from the source to the load, the printzone occupies space between the first portion of the waveguide and the second portion of the waveguide (column 1, line 29; figure 7A, reference 3, 13, 15; column 10, lines 61-68; microwave source and load are inherent to waveguide)
- {claim 21} at least one of the first carriage and the second carriage holding a microwave load and the other one of the first carriage and the second carriage supporting a microwave source (microwave load and source (column 1, line 29; figure 7A, reference 3, 13, 15; column 10, lines 61-68)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Carreira et al into the invention of modified Gandy et al. The motivation for the skilled artisan in doing so is to gain the benefit of enabling

good print quality and minimal showthrough and strikethrough (column 4, lines 6-9). The combination naturally suggests a first carriage and second carriage with one holding a microwave load and the other holding a microwave source.

3. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gandy et al (US Pat 5376957) in view of Meyers et al (US Pat 6463674), as applied to claims 1-2, 5, 8-11, 13-17, 19-20, 22, 24-27, and 29-41, and further in view of Woo et al (US Pat 5645904).

Gandy et al in view of Meyers et al further discloses, with respect to claim 7, the heat zone scans synchronously with the carriage (naturally suggested in view of combination of Gandy et al and Meyers et al).

Gandy et al, as modified, differs from the claimed invention in that it does not disclose the radio frequency heating element includes as the first portion first electrodes and as the second portion second electrodes, a heat zone being positioned therebetween.

Woo et al discloses, with respect to claim 6, the radio frequency heating element includes as the first portion first electrodes and as the second portion second electrodes.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Woo et al into the invention of modified Gandy et al. The motivation for the skilled artisan in doing so is to gain the benefit of efficient heating (column 1, lines 16-18). The combination naturally suggests that a heat zone is positioned between electrodes.

4. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gandy et al (US Pat 5376957) in view of Meyers et al (US Pat 6463674) and Ort (US Pat 4340893).

Gandy et al discloses an inkjet printing mechanism, a reciprocating printing device projecting ink droplets therefrom along a print swath, the print swath having a print swath height (figure 1).

Gandy et al differs from the claimed invention in that it does not disclose a reciprocating bifurcated heating element projecting energy therefrom and applied as heat energy to media adjacent thereto along a heat swath height, the heat swath height being greater than the print swath height whereby print imaging produced by the ink droplets receives the heat energy

through at least a first and second reciprocation of the heating element, the bifurcated heating element including a first portion maintained as taught above first side of the print swath and a second portion maintained a second side of the print swath in face-to-face opposition to the first portion.

Meyers et al discloses a reciprocating bifurcated heating element projecting energy therefrom and applied as heat energy to media adjacent thereto a heat swath height; the bifurcated heating element including a first portion maintained at a first side of the print swath and a second portion maintained at a second side of the print swath in face-to-face opposition to the first portion (figure 3, reference 131, 141).

Ort discloses the heat swath height being greater than the print swath height whereby print imaging produced by the ink droplets receives the heat energy through at least a first and second reciprocation of the heating element (figure 2, reference 33, 44, 45; it is clear from the figure that dryers are farther from the print surface than the face of the ink jet droplet emitter; looking at figure 2 from a vertical perspective, it is clear that the heat swath height is greater than the print swath height).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Ort into the invention of Meyers et al so that the heat swath height is greater than the print swath height whereby print imaging produced by the ink droplets receives the heat energy through at least a first and second reciprocation of the heating element. The motivation for the skilled artisan in doing so is to gain the benefit of providing an ink which dries quickly on the record surface, but does not dry in the inkjet nozzle (column 1, lines 11-13).

Response to Arguments

5. Applicant's arguments, filed on 06/19/03, with respect to claims 1-11, 13-22, 24-27, and 29-42 have been fully considered and are persuasive. The previous final rejection has been withdrawn and replaced by the above new final rejection in response to the amendments filed on 02/03/03.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard S Liang whose telephone number is (703) 305-4754. The examiner can normally be reached on 8:30-5 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (703) 308-4896. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

lsl LSL
July 16, 2003

Stephen D. Meier
Primary Examiner